Contents of Volume 73

July 2003

i **This Month in the *Journal***
Kathryn Garber

Obituary

1 **Sheldon C. Reed, Ph.D. (November 7, 1910–February 1, 2003): Genetic Counseling, Behavioral Genetics**
V. Elving Anderson

Review Article

5 **Hot and Cold Spots of Recombination in the Human Genome: the Reason We Should Find Them and How This Can Be Achieved**
Norman Arnheim, Peter Calabrese, and Magnus Nordborg

Articles

17 **Genome Scan Meta-Analysis of Schizophrenia and Bipolar Disorder, Part I: Methods and Power Analysis**
Douglas F. Levinson, Matthew D. Levinson, Ricardo Segurado, and Cathryn M. Lewis

34 **Genome Scan Meta-Analysis of Schizophrenia and Bipolar Disorder, Part II: Schizophrenia**
Cathryn M. Lewis, Douglas F. Levinson, Lesley H. Wise, Lynn E. DeLisi, Richard E. Straub, Iiris Hovatta, Nigel M. Williams, Sibylle G. Schwab, Ann E. Pulver, Stephen V. Faraone, Linda M. Brzustowicz, Charles A. Kaufmann, David L. Garver, Hugh M. D. Gurling, Eva Lindholm, Hilary Coon, Hans W. Moises, William Byerley, Sarah H. Shaw, Andrea Mesen, Robin Sherrington, F. Anthony O'Neill, Dermot Walsh, Kenneth S. Kendler, Jesper Ekelund, Tiina Paunio, Jouko Lönnqvist, Leena Peltonen, Michael C. O'Donovan, Michael J. Owen, Dieter B. Wildenauer, Wolfgang Maier, Gerald Nestadt, Jean-Louis Blouin, Stylianos E. Antonarakis, Bryan J. Mowry, Jeremy M. Silverman, Raymond R. Crowe, C. Robert Cloninger, Ming T. Tsuang, Dolores Malaspina, Jill M. Harkavy-Friedman, Dragan M. Svrakic, Anne S. Bassett, Jennifer Holcomb, Gursharan Kalsi, Andrew McQuillin, Jon Brynjolfson, Thordur Sigmundsson, Hannes Petursson, Elena Jazin, Tomas Zoëga, and Tomas Helgason

49 **Genome Scan Meta-Analysis of Schizophrenia and Bipolar Disorder, Part III: Bipolar Disorder**
Ricardo Segurado, Sevilla D. Detera-Wadleigh, Douglas F. Levinson, Cathryn M. Lewis, Michael Gill, John I. Nurnberger, Jr., Nick Craddock, J. Raymond DePaulo, Miron Baron, Elliot S. Gershon, Jenny Ekholm, Sven Cichon, Gustavo Turecki, Stephan Claes, John R. Kelsoe, Peter R. Schofield, Renee F. Badenhop, J. Morissette, Hilary Coon, Douglas Blackwood, L. Alison McInnes, Tatiana Foroud, Howard J. Edenberg, Theodore Reich, John P. Rice, Alison Goate, Melvin G. McInnis, Francis J. McMahon, Judith A. Badner, Lynn R. Goldin, Phil Bennett, Virginia L. Willour, Peter P. Zandi, Jianjun Liu, Conrad Gilliam, Suh-Hang Juo, Wade H. Berrettini, Takeo Yoshikawa, Leena Peltonen, Jouko Lönnqvist, Markus M. Nöthen, Johannes Schumacher, Christine Windemuth, Marcella Rietschel, Peter Propping, Wolfgang Maier, Martin Alda, Paul Grof, Guy A. Rouleau, Jurgen Del-Favero, Christine Van Broeckhoven, Julien Mendlewicz, Rolf Adolfsson, M. Anne Spence, Hermann Luebbert, Linda J. Adams, Jennifer A. Donald, Philip B. Mitchell, Nicholas Barden, Eric Shink, William Byerley, Walter Muir, Peter M. Visscher, Stuart Macgregor, Hugh Gurling, Gursharan Kalsi, Andrew McQuillin, Michael A. Escamilla, Victor I. Reus, Pedro Leon, Nelson B. Freimer, Henrik Ewald, Torben A. Kruse, Ole Mors, Uppala Radhakrishna, Jean-Louis Blouin, Stylianos E. Antonarakis, and Nurten Akarsu

Contents of Volume 73

July 2003

i **This Month in the *Journal***
Kathryn Garber

Obituary

1 **Sheldon C. Reed, Ph.D. (November 7, 1910–February 1, 2003): Genetic Counseling, Behavioral Genetics**
V. Elving Anderson

Review Article

5 **Hot and Cold Spots of Recombination in the Human Genome: the Reason We Should Find Them and How This Can Be Achieved**
Norman Arnheim, Peter Calabrese, and Magnus Nordborg

Articles

17 **Genome Scan Meta-Analysis of Schizophrenia and Bipolar Disorder, Part I: Methods and Power Analysis**
Douglas F. Levinson, Matthew D. Levinson, Ricardo Segurado, and Cathryn M. Lewis

34 **Genome Scan Meta-Analysis of Schizophrenia and Bipolar Disorder, Part II: Schizophrenia**
Cathryn M. Lewis, Douglas F. Levinson, Lesley H. Wise, Lynn E. DeLisi, Richard E. Straub, Iiris Hovatta, Nigel M. Williams, Sibylle G. Schwab, Ann E. Pulver, Stephen V. Faraone, Linda M. Brzustowicz, Charles A. Kaufmann, David L. Garver, Hugh M. D. Gurling, Eva Lindholm, Hilary Coon, Hans W. Moises, William Byerley, Sarah H. Shaw, Andrea Mesen, Robin Sherrington, F. Anthony O'Neill, Dermot Walsh, Kenneth S. Kendler, Jesper Ekelund, Tiina Paunio, Jouko Lönnqvist, Leena Peltonen, Michael C. O'Donovan, Michael J. Owen, Dieter B. Wildenauer, Wolfgang Maier, Gerald Nestadt, Jean-Louis Blouin, Stylianos E. Antonarakis, Bryan J. Mowry, Jeremy M. Silverman, Raymond R. Crowe, C. Robert Cloninger, Ming T. Tsuang, Dolores Malaspina, Jill M. Harkavy-Friedman, Dragan M. Svrakic, Anne S. Bassett, Jennifer Holcomb, Gursharan Kalsi, Andrew McQuillin, Jon Brynjolfson, Thordur Sigmundsson, Hannes Petursson, Elena Jazin, Tomas Zoëga, and Tomas Helgason

49 **Genome Scan Meta-Analysis of Schizophrenia and Bipolar Disorder, Part III: Bipolar Disorder**
Ricardo Segurado, Sevilla D. Detera-Wadleigh, Douglas F. Levinson, Cathryn M. Lewis, Michael Gill, John I. Nurnberger, Jr., Nick Craddock, J. Raymond DePaulo, Miron Baron, Elliot S. Gershon, Jenny Ekholm, Sven Cichon, Gustavo Turecki, Stephan Claes, John R. Kelsoe, Peter R. Schofield, Renee F. Badenhop, J. Morissette, Hilary Coon, Douglas Blackwood, L. Alison McInnes, Tatiana Foroud, Howard J. Edenberg, Theodore Reich, John P. Rice, Alison Goate, Melvin G. McInnis, Francis J. McMahon, Judith A. Badner, Lynn R. Goldin, Phil Bennett, Virginia L. Willour, Peter P. Zandi, Jianjun Liu, Conrad Gilliam, Suh-Hang Juo, Wade H. Berrettini, Takeo Yoshikawa, Leena Peltonen, Jouko Lönnqvist, Markus M. Nöthen, Johannes Schumacher, Christine Windemuth, Marcella Rietschel, Peter Propping, Wolfgang Maier, Martin Alda, Paul Grof, Guy A. Rouleau, Jurgen Del-Favero, Christine Van Broeckhoven, Julien Mendlewicz, Rolf Adolfsson, M. Anne Spence, Hermann Luebbert, Linda J. Adams, Jennifer A. Donald, Philip B. Mitchell, Nicholas Barden, Eric Shink, William Byerley, Walter Muir, Peter M. Visscher, Stuart Macgregor, Hugh Gurling, Gursharan Kalsi, Andrew McQuillin, Michael A. Escamilla, Victor I. Reus, Pedro Leon, Nelson B. Freimer, Henrik Ewald, Torben A. Kruse, Ole Mors, Uppala Radhakrishna, Jean-Louis Blouin, Stylianos E. Antonarakis, and Nurten Akarsu

63 Haplotype Block Partition with Limited Resources and Applications to Human Chromosome 21 Haplotype Data
Kui Zhang, Fengzhu Sun, Michael S. Waterman, and Ting Chen

74 Expressivity of Holt-Oram Syndrome Is Not Predicted by *TBX5* Genotype
Anna-Marie E. Brassington, Sandy S. Sung, Reha M. Toydemir, Trung Le, Amy D. Roeder, Ann E. Rutherford, Frank G. Whitby, Lynn B. Jorde, and Michael J. Bamshad

86 Minimum Description Length Block Finder, a Method to Identify Haplotype Blocks and to Compare the Strength of Block Boundaries
H. Mannila, M. Koivisto, M. Perola, T. Varilo, W. Hennah, J. Ekelund, M. Lukk, L. Peltonen, and E. Ukkonen

95 Mutations in the *Fumarate Hydratase* Gene Cause Hereditary Leiomyomatosis and Renal Cell Cancer in Families in North America
Jorge R. Toro, Michael L. Nickerson, Ming-Hui Wei, Michelle B. Warren, Gladys M. Glenn, Maria L. Turner, Laveta Stewart, Paul Duray, Ousman Tourre, Nirmala Sharma, Peter Choyke, Pamela Stratton, Maria Merino, McClellan M. Walther, W. Marston Linehan, Laura S. Schmidt, and Berton Zbar

107 Genomewide Linkage Analyses of Bipolar Disorder: A New Sample of 250 Pedigrees from the National Institute of Mental Health Genetics Initiative
Danielle M. Dick, Tatiana Foroud, Leah Flury, Elizabeth S. Bowman, Marvin J. Miller, N. Leela Rau, P. Ryan Moe, Nalini Samavedy, Rif El-Mallakh, Husseini Manji, Debra A. Glitz, Eric T. Meyer, Carrie Smiley, Rhoda Hahn, Clifford Widmark, Rebecca McKinney, Laura Sutton, Christos Ballas, Dorothy Grice, Wade Berrettini, William Byerley, William Coryell, Raymond DePaulo, Dean F. MacKinnon, Elliot S. Gershon, John R. Kelsoe, Francis J. McMahon, Melvin McInnis, Dennis L. Murphy, Theodore Reich, William Scheftner, and John I. Nurnberger Jr.

115 Selection of Genetic Markers for Association Analyses, Using Linkage Disequilibrium and Haplotypes
Zhaoling Meng, Dmitri V. Zaykin, Chun-Fang Xu, Michael Wagner, and Margaret G. Ehm

131 Mutational Mechanisms of Williams-Beuren Syndrome Deletions
Mònica Bayés, Luis F. Magano, Núria Rivera, Raquel Flores, and Luis A. Pérez Jurado

152 A Haplotype Implicated in Schizophrenia Susceptibility Is Associated with Reduced *COMT* Expression in Human Brain
Nicholas J. Bray, Paul R. Buckland, Nigel M. Williams, Hywel J. Williams, Nadine Norton, Michael J. Owen, and Michael C. O'Donovan

162 Fabry Disease: Novel α-Galactosidase A 3′-Terminal Mutations Result in Multiple Transcripts Due to Aberrant 3′-End Formation
Makiko Yasuda, Junaid Shabbeer, Makiko Osawa, and Robert J. Desnick

174 Loss of Kindlin-1, a Human Homolog of the *Caenorhabditis elegans* Actin–Extracellular-Matrix Linker Protein UNC-112, Causes Kindler Syndrome
Dawn H. Siegel, Gabrielle H. S. Ashton, Homero G. Penagos, James V. Lee, Heidi S. Feiler, Kirk C. Wilhelmsen, Andrew P. South, Frances J. D. Smith, Alan R. Prescott, Vesarat Wessagowit, Noritaka Oyama, Masashi Akiyama, Daifullah Al Aboud, Khalid Al Aboud, Ahmad Al Githami, Khalid Al Hawsawi, Abla Al Ismaily, Raouf Al-Suwaid, David J. Atherton, Ruggero Caputo, Jo-David Fine, Ilona J. Frieden, Elaine Fuchs, Richard M. Haber, Takashi Harada, Yasuo Kitajima, Susan B. Mallory, Hideoki Ogawa, Sedef Sahin, Hiroshi Shimizu, Yasushi Suga, Gianluca Tadini, Kikuo Tsuchiya, Colin B. Wiebe, Fenella Wojnarowska, Adel B. Zaghloul, Takahiro Hamada, Rajeev Mallipeddi, Robin A. J. Eady, W. H. Irwin McLean, John A. McGrath, and Ervin H. Epstein

188 Crossover Interference in Humans
E. A. Housworth and F. W. Stahl

Reports

198 **Ehlers-Danlos Syndrome with Severe Early-Onset Periodontal Disease (EDS-VIII) Is a Distinct, Heterogeneous Disorder with One Predisposition Gene at Chromosome 12p13**
Nazneen Rahman, Melanie Dunstan, M. Dawn Teare, Sandra Hanks, Jenny Douglas, Kim Coleman, William E. Bottomly, Mary E. Campbell, Britta Berglund, Magnus Nordenskjöld, Bengt Forssell, Nigel Burrows, Peter Lunt, Ian Young, Nigel Williams, Graham R. Bignell, P. Andrew Futreal, and F. Michael Pope

205 **IBD5 is a General Risk Factor for Inflammatory Bowel Disease: Replication of Association with Crohn Disease and Identification of a Novel Association with Ulcerative Colitis**
Cosmas Giallourakis, Monika Stoll, Katie Miller, Jochen Hampe, Eric S. Lander, Mark J. Daly, Stefan Schreiber, and John D. Rioux

Letters to the Editor

212 **Mutations in *TNNT3* Cause Multiple Congenital Contractures: A Second Locus for Distal Arthrogryposis Type 2B**
Sandy S. Sung, Anna-Marie E. Brassington, Patrycja A. Krakowiak, John C. Carey, Lynn B. Jorde, and Michael Bamshad

214 **Haploinsufficiency of *TNXB* Is Associated with Hypermobility Type of Ehlers-Danlos Syndrome**
Manon C. Zweers, Jim Bristow, Peter M. Steijlen, Willow B. Dean, Ben C. Hamel, Marisol Otero, Martina Kucharekova, Jan B. Boezeman, and Joost Schalkwijk

Book Reviews

218 **DNA Microarrays: A Molecular Cloning Manual**
Edited by David Bowtell and Joseph Sambrook
Reviewed by Alain E. Lagarde

219 **Babyface: A Story of Heart and Bones**
Written by Jeanne McDermott
Reviewed by Louise Acheson

Announcements

221 **Employment Opportunities**

August 2003

i **This Month in the *Journal***
Kathryn Garber

Articles

223 **Two-Locus Heterogeneity Cannot Be Distinguished from Two-Locus Epistasis on the Basis of Affected-Sib-Pair Data**
Veronica J. Vieland and Jian Huang

233 **Mutations in Novel Peroxin Gene *PEX26* That Cause Peroxisome-Biogenesis Disorders of Complementation Group 8 Provide a Genotype-Phenotype Correlation**
Naomi Matsumoto, Shigehiko Tamura, Satomi Furuki, Non Miyata, Ann Moser, Nobuyuki Shimozawa, Hugo W. Moser, Yasuyuki Suzuki, Naomi Kondo, and Yukio Fujiki

247 **Nuclear and Mitochondrial DNA Analysis of a 2,000-Year-Old Necropolis in the Egyin Gol Valley of Mongolia**
Christine Keyser-Tracqui, Eric Crubézy, and Bertrand Ludes

261 **BRD2 (RING3) Is a Probable Major Susceptibility Gene for Common Juvenile Myoclonic Epilepsy**
Deb K. Pal, Oleg V. Evgrafov, Paula Tabares, Fengli Zhang, Martina Durner, and David A. Greenberg

271 **A 3.9-Centimorgan-Resolution Human Single-Nucleotide Polymorphism Linkage Map and Screening Set**
Tara C. Matise, Ravi Sachidanandam, Andrew G. Clark, Leonid Kruglyak, Ellen Wijsman, Jerzy Kakol, Steven Buyske, Buena Chui, Patrick Cohen, Claudia de Toma, Margaret Ehm, Stephen Glanowski, Chunsheng He, Jeremy Heil, Kyriacos Markianos, Ivy McMullen, Margaret A. Pericak-Vance, Arkadiy Silbergleit, Lincoln Stein, Michael Wagner, Alexander F. Wilson, Jeffrey D. Winick, Emily S. Winn-Deen, Carl T. Yamashiro, Howard M. Cann, Eric Lai, and Arthur L. Holden

285 **Linkage Disequilibrium and Inference of Ancestral Recombination in 538 Single-Nucleotide Polymorphism Clusters across the Human Genome**
Andrew G. Clark, Rasmus Nielsen, James Signorovitch, Tara C. Matise, Stephen Glanowski, Jeremy Heil, Emily S. Winn-Deen, Arthur L. Holden, and Eric Lai

301 **Localization of a Novel Melanoma Susceptibility Locus to 1p22**
Elizabeth Gillanders, Suh-Hang Hank Juo, Elizabeth A. Holland, MaryPat Jones, Derek Nancarrow, Diana Freas-Lutz, Raman Sood, Naeun Park, Mezbah Faruque, Carol Markey, Richard F. Kefford, Jane Palmer, Wilma Bergman, D. Timothy Bishop, Margaret A. Tucker, Brigitte Bressac-de Paillerets, Johan Hansson, The Lund Melanoma Study Group, Mitchell Stark, Nelleke Gruis, Julia Newton Bishop, Alisa M. Goldstein, Joan E. Bailey-Wilson, Graham J. Mann, Nicholas Hayward, Jeffrey Trent, and The Melanoma Genetics Consortium

314 **Discordance between Genetic and Epigenetic Defects in Pseudohypoparathyroidism Type 1b Revealed by Inconsistent Loss of Maternal Imprinting at *GNAS1***
Suzanne Jan de Beur, Changlin Ding, Emily Germain-Lee, Justin Cho, Alexander Maret, and Michael A. Levine

323 **Localization of a Susceptibility Gene for Type 2 Diabetes to Chromosome 5q34–q35.2**
Inga Reynisdottir, Gudmar Thorleifsson, Rafn Benediktsson, Gunnar Sigurdsson, Valur Emilsson, Anna Sigurlin Einarsdottir, Eyrun Edda Hjorleifsdottir, Gudbjorg Th. Orlygsdottir, Gudrun Thora Bjornsdottir, Jona Saemundsdottir, Skarphedinn Halldorsson, Soffia Hrafnkelsdottir, Steinunn Bjorg Sigurjonsdottir, Svana Steinsdottir, Mitchell Martin, Jarema P. Kochan, Brian K. Rhees, Struan F. A. Grant, Michael L. Frigge, Augustine Kong, Vilmundur Gudnason, Kari Stefansson, and Jeffrey R. Gulcher

336 **Finding Haplotype Block Boundaries by Using the Minimum-Description-Length Principle**
Eric C. Anderson and John Novembre

355 **New Molecular Mechanism for Ullrich Congenital Muscular Dystrophy: A Heterozygous In-Frame Deletion in the *COL6A1* Gene Causes a Severe Phenotype**
Te-Cheng Pan, Rui-Zhu Zhang, Dominick G. Sudano, Suely K. Marie, Carsten G. Bönnemann, and Mon-Li Chu

Reports

370 **Sequence Variants of the Brain-Derived Neurotrophic Factor (*BDNF*) Gene Are Strongly Associated with Obsessive-Compulsive Disorder**
Diana Hall, Alefiya Dhilla, Anna Charalambous, Joseph A. Gogos, and Maria Karayiorgou

377 **A Gene Locus Responsible for Dyschromatosis Symmetrica Hereditaria (DSH) Maps to Chromosome 6q24.2-q25.2**
Qing-he Xing, Ming-tai Wang, Xiang-dong Chen, Guo-yin Feng, Hong-yun Ji, Jian-dong Yang, Jian-jun Gao, Wei Qin, Xue-qing Qian, Sheng-nan Wu, and Lin He

383 **A New Familial Amyotrophic Lateral Sclerosis Locus on Chromosome 16q12.1-16q12.2**
Halah Abalkhail, John Mitchell, James Habgood, Richard Orrell, and Jacqueline de Belleroche

390 Two Families with Familial Amyotrophic Lateral Sclerosis Are Linked to a Novel Locus on Chromosome 16q
Deborah M. Ruddy, Matthew J. Parton, Ammar Al-Chalabi, Cathryn M. Lewis, Caroline Vance, Bradley N. Smith, P. Nigel Leigh, John F. Powell, Teepu Siddique, Eelco Postumus Meyjes, Frank Baas, Vianney De Jong, and Christopher E. Shaw

397 Identification of Two Novel Loci for Dominantly Inherited Familial Amyotrophic Lateral Sclerosis
Peter C. Sapp, Betsy A. Hosler, Diane McKenna-Yasek, Wendy Chin, Amity Gann, Hilary Genise, Julie Gorenstein, Michael Huang, Wen Sailer, Meg Scheffler, Marianne Valesky, Jonathan L. Haines, Margaret Pericak-Vance, Teepu Siddique, H. Robert Horvitz, and Robert H. Brown Jr.

404 Germline *PTEN* Promoter Mutations and Deletions in Cowden/Bannayan-Riley-Ruvalcaba Syndrome Result in Aberrant PTEN Protein and Dysregulation of the Phosphoinositol-3-Kinase/Akt Pathway
Xiao-Ping Zhou, Kristin A. Waite, Robert Pilarski, Heather Hampel, Magali J. Fernandez, Cindy Bos, Majed Dasouki, Gerald L. Feldman, Lois A. Greenberg, Jennifer Ivanovich, Ellen Matloff, Annette Patterson, Mary Ella Pierpont, Donna Russo, Najah T. Nassif, and Charis Eng

412 Mutations of von Hippel-Lindau Tumor-Suppressor Gene and Congenital Polycythemia
Yves Pastore, Katerina Jedlickova, Yongli Guan, Enli Liu, James Fahner, Henrik Hasle, Jaroslav F. Prchal, and Josef T. Prchal

420 African American Hypertensive Nephropathy Maps to a New Locus on Chromosome 9q31-q32
Ki Wha Chung, Robert E. Ferrell, Demetrius Ellis, Michael Barmada, Michael Moritz, David N. Finegold, Ronald Jaffe, and Abhay Vats

430 The International Psoriasis Genetics Study: Assessing Linkage to 14 Candidate Susceptibility Loci in a Cohort of 942 Affected Sib Pairs
The International Psoriasis Genetics Consortium

Letters to the Editor

438 The Possibility of a Selection Process in the Ashkenazi Jewish Population
Joel Zlotogora and Gideon Bach

440 Selection in the Ashkenazi Jewish Population Unlikely—Reply to Zlotogora and Bach
Neil Risch and Hua Tang

Announcements

442 Employment Opportunites; Training Programs

Notice of Retraction

444 Minimum Description Length Block Finder, a Method to Identify Haplotype Blocks and to Compare the Strength of Block Boundaries
H. Mannila, M. Koivisto, M. Perola, T. Varilo, W. Hennah, J. Ekelund, M. Lukk, L. Peltonen, and E. Ukkonen (July 2003 [73:86–94])

Errata

445 Latherosterolosis, a Novel Multiple-Malformation/Mental Retardation Syndrome Due to Deficiency of 3β-Hydroxysteroid-Δ^5-Desaturase
Brunetti-Pierri et al. (October 2002 [71:952–958])

445 Book review: *Familial Breast and Ovarian Cancer: Genetics, Screening, and Management*
Reviewed by June Peters (June 2003 [72:1596–1597])

September 2003

i **This Month in the *Journal***
Kathryn Garber

iii **Notice of Policy**
Stephen T. Warren

Review Articles

447 **Genetic Disorders of the Skeleton: A Developmental Approach**
Uwe Kornak and Stefan Mundlos

475 **Miller-Dieker Syndrome: Analysis of a Human Contiguous Gene Syndrome in the Mouse**
Jessica Yingling, Kazuhito Toyo-oka, and Anthony Wynshaw-Boris

Articles

489 **Natural Selection on the Olfactory Receptor Gene Family in Humans and Chimpanzees**
Yoav Gilad, Carlos D. Bustamante, Doron Lancet, and Svante Pääbo

502 **Assessing the Performance of the Haplotype Block Model of Linkage Disequilibrium**
Jeffrey D. Wall and Jonathan K. Pritchard

516 **Estimation of the Inbreeding Coefficient through Use of Genomic Data**
Anne-Louise Leutenegger, Bernard Prum, Emmanuelle Génin, Christophe Verny, Arnaud Lemainque, Françoise Clerget-Darpoux, and Elizabeth A. Thompson

524 **Y-Chromosome Evidence for Differing Ancient Demographic Histories in the Americas**
Maria-Catira Bortolini, Francisco M. Salzano, Mark G. Thomas, Steven Stuart, Selja P. K. Nasanen, Claiton H. D. Bau, Mara H. Hutz, Zulay Layrisse, Maria L. Petzl-Erler, Luiza T. Tsuneto, Kim Hill, Ana M. Hurtado, Dinorah Castro-de-Guerra, Maria M. Torres, Helena Groot, Roman Michalski, Pagbajabyn Nymadawa, Gabriel Bedoya, Neil Bradman, Damian Labuda, and Andres Ruiz-Linares

540 **Age-Related Macular Degeneration—a Genome Scan in Extended Families**
Jacek Majewski, Dennis W. Schultz, Richard G. Weleber, Mitchell B. Schain, Albert O. Edwards, Tara C. Matise, Ted S. Acott, Jurg Ott, and Michael L. Klein

551 **Selection and Evaluation of Tagging SNPs in the Neuronal-Sodium-Channel Gene *SCN1A*: Implications for Linkage-Disequilibrium Gene Mapping**
Mike E. Weale, Chantal Depondt, Stuart J. Macdonald, Alice Smith, Poh San Lai, Simon D. Shorvon, Nicholas W. Wood, and David B. Goldstein

566 **Transmission/Disequilibrium Test Based on Haplotype Sharing for Tightly Linked Markers**
Shuanglin Zhang, Qiuying Sha, Huann-Sheng Chen, Jianping Dong, and Renfang Jiang

580 **An Integrated Haplotype Map of the Human Major Histocompatibility Complex**
Emily C. Walsh, Kristie A. Mather, Stephen F. Schaffner, Lisa Farwell, Mark J. Daly, Nick Patterson, Michael Cullen, Mary Carrington, Teodorica L. Bugawan, Henry Erlich, Jay Campbell, Jeffrey Barrett, Katie Miller, Glenys Thomson, Eric S. Lander, and John D. Rioux

591 **Extensive Normal Copy Number Variation of a β-Defensin Antimicrobial-Gene Cluster**
E. J. Hollox, J. A. L. Armour, and J. C. K. Barber

601 Genomewide Linkage Scan for Schizophrenia Susceptibility Loci among Ashkenazi Jewish Families Shows Evidence of Linkage on Chromosome 10q22
M. Daniele Fallin, Virginia K. Lasseter, Paula S. Wolyniec, John A. McGrath, Gerald Nestadt, David Valle, Kung-Yee Liang, and Ann E. Pulver

612 Novel Case-Control Test in a Founder Population Identifies P-Selectin as an Atopy-Susceptibility Locus
Catherine Bourgain, Sabine Hoffjan, Raluca Nicolae, Dina Newman, Lori Steiner, Karen Walker, Rebecca Reynolds, Carole Ober, and Mary Sara McPeek

Reports

627 *ACTN3* Genotype Is Associated with Human Elite Athletic Performance
Nan Yang, Daniel G. MacArthur, Jason P. Gulbin, Allan G. Hahn, Alan H. Beggs, Simon Easteal, and Kathryn North

632 A Locus for Hereditary Sensory Neuropathy with Cough and Gastroesophageal Reflux on Chromosome 3p22-p24
C. Kok, M. L. Kennerson, P. J. Spring, A. J. Ing, J. D. Pollard, and G. A. Nicholson

638 *MC1R* Mutations Modify the Classic Phenotype of Oculocutaneous Albinism Type 2 (OCA2)
Richard A. King, Rebecca K. Willaert, Ramona M. Schmidt, Jacy Pietsch, Sarah Savage, Marcia J. Brott, James P. Fryer, C. Gail Summers, and William S. Oetting

646 Effects of Electron-Beam Irradiation on Buccal-Cell DNA
Philip E. Castle, Montserrat Garcia-Closas, Tracie Franklin, Stephen Chanock, Vinita Puri, Robert Welch, Nathaniel Rothman, and Jim Vaught

652 A Full-Likelihood Method for the Evaluation of Causality of Sequence Variants from Family Data
Deborah Thompson, Douglas F. Easton, and David E. Goldgar

656 Linkage Analysis in Families with Joubert Syndrome Plus Oculo-Renal Involvement Identifies the CORS2 Locus on Chromosome 11p12-q13.3
Lesley C. Keeler, Sarah E. Marsh, Esther P. Leeflang, Christopher G. Woods, László Sztriha, Lihadh Al-Gazali, Aithala Gururaj, and Joseph G. Gleeson

663 Description, Nomenclature, and Mapping of a Novel Cerebello-Renal Syndrome with the Molar Tooth Malformation
Enza Maria Valente, Damiano Carmelo Salpietro, Francesco Brancati, Enrico Bertini, Tiziana Galluccio, Gaetano Tortorella, Silvana Briuglia, and Bruno Dallapiccola

671 Phylogeny of East Asian Mitochondrial DNA Lineages Inferred from Complete Sequences
Qing-Peng Kong, Yong-Gang Yao, Chang Sun, Hans-Jürgen Bandelt, Chun-Ling Zhu, and Ya-Ping Zhang

677 *CARD15*: a Pleiotropic Autoimmune Gene That Confers Susceptibility to Psoriatic Arthritis
P. Rahman, S. Bartlett, F. Siannis, F. J. Pellett, V. T. Farewell, L. Peddle, C. T. Schentag, C. A. Alderdice, S. Hamilton, M. Khraishi, Y. Tobin, D. Hefferton, and D. D. Gladman

682 A Genome Scan for Modifiers of Age at Onset in Huntington Disease: The HD MAPS Study
Jian-Liang Li, Michael R. Hayden, Elisabeth W. Almqvist, Ryan R. Brinkman, Alexandra Durr, Catherine Dodé, Patrick J. Morrison, Oksana Suchowersky, Christopher A. Ross, Russell L. Margolis, Adam Rosenblatt, Estrella Gómez-Tortosa, David Mayo Cabrero, Andrea Novelletto, Marina Frontali, Martha Nance, Ronald J. A. Trent, Elizabeth McCusker, Randi Jones, Jane S. Paulsen, Madeline Harrison, Andrea Zanko, Ruth K. Abramson, Ana L. Russ, Beth Knowlton, Luc Djoussé, Jayalakshmi S. Mysore, Suzanne Tariot, Michael F. Gusella, Vanessa C. Wheeler, Larry D. Atwood, L. Adrienne Cupples, Marie Saint-Hilaire, Jang-Ho J. Cha, Steven M. Hersch, Walter J. Koroshetz, James F. Gusella, Marcy E. MacDonald, and Richard H. Myers

688 **Dependence of Mutational Asymmetry on Gene-Expression Levels in the Human Genome**
Jacek Majewski

693 **Mutations of the RNA-Specific Adenosine Deaminase Gene (*DSRAD*) Are Involved in Dyschromatosis Symmetrica Hereditaria**
Yoshinori Miyamura, Tamio Suzuki, Michihiro Kono, Katsuhiko Inagaki, Shiro Ito, Noriyuki Suzuki, and Yasushi Tomita

Letter to the Editor

700 **A Novel Y-Chromosome Variant Puts an Upper Limit on the Timing of First Entry into the Americas**
Mark Seielstad, Nadira Yuldasheva, Nadia Singh, Peter Underhill, Peter Oefner, Peidong Shen, and R. Spencer Wells

Book Review

706 **Reflections of Our Past: How Human History Is Revealed in Our Genes**
Written by John H. Relethford
Reviewed by Francisco M. Salzano

Announcements

707 **Employment Opportunities; Resources for Human Genetic Research; ABMG Diplomates**

Errata

709 **3-Methylglutaconic Aciduria Type I Is Caused by Mutations in *AUH***
Ijlst et al. (December 2002 [71:1463–1466])

709 **Average Risks of Breast and Ovarian Cancer Associated with *BRCA1* or *BRCA2* Mutations Detected in Case Series Unselected for Family History: A Combined Analysis of 22 Studies**
Antoniou et al. (May 2003 [72:1117–1130])

October 2003

i **This Month in the *Journal***
Kathryn Garber

Invited Editorial

711 **"Are We There Yet?": Deciding When One Has Demonstrated Specific Genetic Causation in Complex Diseases and Quantitative Traits**
Grier P. Page, Varghese George, Rodney C. Go, Patricia Z. Page, and David B. Allison

Articles

720 ***HLA-DRB1*1101*: A Significant Risk Factor for Sarcoidosis in Blacks and Whites**
Milton D. Rossman, Bruce Thompson, Margaret Frederick, Mary Maliarik, Michael C. Iannuzzi, Benjamin A. Rybicki, Janardan P. Pandey, Lee S. Newman, Eleni Magira, Bojana Beznik-Cizman, Dimitri Monos, and the ACCESS Group

736 Common and Unique Susceptibility Loci in Graves and Hashimoto Diseases: Results of Whole-Genome Screening in a Data Set of 102 Multiplex Families
Yaron Tomer, Yoshiyuki Ban, Erlinda Concepcion, Giuseppe Barbesino, Ronald Villanueva, David A. Greenberg, and Terry F. Davies

748 Pooled Analysis of Loss of Heterozygosity in Breast Cancer: a Genome Scan Provides Comparative Evidence for Multiple Tumor Suppressors and Identifies Novel Candidate Regions
Brian J. Miller, Daolong Wang, Ralf Krahe, and Fred A. Wright

768 Multiple Origins of Ashkenazi Levites: Y Chromosome Evidence for Both Near Eastern and European Ancestries
Doron M. Behar, Mark G. Thomas, Karl Skorecki, Michael F. Hammer, Ekaterina Bulygina, Dror Rosengarten, Abigail L. Jones, Karen Held, Vivian Moses, David Goldstein, Neil Bradman, and Michael E. Weale

780 A Genomewide Scan for Age-Related Macular Degeneration Provides Evidence for Linkage to Several Chromosomal Regions
Johanna M. Seddon, Susan L. Santangelo, Kathryn Book, Sandy Chong, and Jennifer Cote

791 Mutations in the Gene Encoding Capillary Morphogenesis Protein 2 Cause Juvenile Hyaline Fibromatosis and Infantile Systemic Hyalinosis
Sandra Hanks, Sarah Adams, Jenny Douglas, Laura Arbour, David J. Atherton, Sevim Balci, Harald Bode, Mary E. Campbell, Murray Feingold, Gökhan Keser, Wim Kleijer, Grazia Mancini, John A. McGrath, Francesco Muntoni, Arti Nanda, M. Dawn Teare, Matthew Warman, F. Michael Pope, Andrea Superti-Furga, P. Andrew Futreal, and Nazneen Rahman

801 Using the Noninformative Families in Family-Based Association Tests: A Powerful New Testing Strategy
Christoph Lange, Dawn DeMeo, Edwin K. Silverman, Scott T. Weiss, and Nan M. Laird

812 Genomewide Linkage and Linkage Disequilibrium Analyses Identify *COL6A1*, on Chromosome 21, as the Locus for Ossification of the Posterior Longitudinal Ligament of the Spine
Toshihiro Tanaka, Katsunori Ikari, Kozo Furushima, Akihiro Okada, Hiroshi Tanaka, Ken-Ichi Furukawa, Kenichi Yoshida, Toshiyuki Ikeda, Shiro Ikegawa, Steven C. Hunt, Jun Takeda, Satoshi Toh, Seiko Harata, Toshiaki Nakajima, and Ituro Inoue

823 An *Alu* Transposition Model for the Origin and Expansion of Human Segmental Duplications
Jeffrey A. Bailey, Ge Liu, and Evan E. Eichler

835 Confirmation of the Type 2 Myotonic Dystrophy $(CCTG)_n$ Expansion Mutation in Patients with Proximal Myotonic Myopathy/Proximal Myotonic Dystrophy of Different European Origins: A Single Shared Haplotype Indicates an Ancestral Founder Effect
Linda L. Bachinski, Bjarne Udd, Giovanni Meola, Valeria Sansone, Guillaume Bassez, Bruno Eymard, Charles A. Thornton, Richard T. Moxley, Peter S. Harper, Mark T. Rogers, Karin Jurkat-Rott, Frank Lehmann-Horn, Thomas Wieser, Josep Gamez, Carmen Navarro, Armand Bottani, Andre Kohler, Mark D. Shriver, Riitta Sallinen, Maija Wessman, Shanxiang Zhang, Fred A. Wright, and Ralf Krahe

849 Myotonic Dystrophy Type 2: Human Founder Haplotype and Evolutionary Conservation of the Repeat Tract
Christina L. Liquori, Yoshio Ikeda, Marcy Weatherspoon, Kenneth Ricker, Benedikt G. H. Schoser, Joline C. Dalton, John W. Day, and Laura P. W. Ranum

863 Recent Advances in Human Quantitative-Trait–Locus Mapping: Comparison of Methods for Selected Sibling Pairs
Karen T.Cuenco, Jin P. Szatkiewicz, and Eleanor Feingold

874 Recent Advances in Human Quantitative-Trait–Locus Mapping: Comparison of Methods for Discordant Sibling Pairs
Jin P. Szatkiewicz, Karen T.Cuenco, and Eleanor Feingold

886 A Genomewide Screen of 345 Families for Autism-Susceptibility Loci
Amanda L. Yonan, Maricela Alarcón, Rong Cheng, Patrik K. E. Magnusson, Sarah J. Spence, Abraham A. Palmer, Adina Grunn, Suh-Hang Hank Juo, Joseph D. Terwilliger, Jianjun Liu, Rita M. Cantor, Daniel H. Geschwind, and T. Conrad Gilliam

898 Identification of Four Highly Conserved Genes between Breakpoint Hotspots BP1 and BP2 of the Prader-Willi/Angelman Syndromes Deletion Region That Have Undergone Evolutionary Transposition Mediated by Flanking Duplicons
J-H. Chai, D. P. Locke, J. M. Greally, J. H. M. Knoll, T. Ohta, J. Dunai, A. Yavor, E. E. Eichler, and R. D. Nicholls

Reports

926 Slowed Conduction and Thin Myelination of Peripheral Nerves Associated with Mutant Rho Guanine-Nucleotide Exchange Factor 10
Kristien Verhoeven, Peter De Jonghe, Tom Van de Putte, Eva Nelis, An Zwijsen, Nathalie Verpoorten, Els De Vriendt, An Jacobs, Veerle Van Gerwen, Annick Francis, Chantal Ceuterick, Danny Huylebroeck, and Vincent Timmerman

933 Genomic Imprinting and Linkage Test for Quantitative-Trait Loci in Extended Pedigrees
Sanjay Shete, Xiaojun Zhou, and Christopher I. Amos

939 The Paternal-Age Effect in Apert Syndrome Is Due, in Part, to the Increased Frequency of Mutations in Sperm
Rivka L. Glaser, Karl W. Broman, Rebecca L. Schulman, Brenda Eskenazi, Andrew J. Wyrobek, and Ethylin Wang Jabs

948 Loss of CpG Methylation Is Strongly Correlated with Loss of Histone H3 Lysine 9 Methylation at DMR-LIT1 in Patients with Beckwith-Wiedemann Syndrome
Ken Higashimoto, Takeshi Urano, Kazumitsu Sugiura, Hitomi Yatsuki, Keiichiro Joh, Wei Zhao, Mayumi Iwakawa, Hirofumi Ohashi, Mitsuo Oshimura, Norio Niikawa, Tsunehiro Mukai, and Hidenobu Soejima

957 Mutations in Capillary Morphogenesis Gene-2 Result in the Allelic Disorders Juvenile Hyaline Fibromatosis and Infantile Systemic Hyalinosis
Oonagh Dowling, Analisa Difeo, Maria C. Ramirez, Turgut Tukel, Goutham Narla, Luisa Bonafe, Hulya Kayserili, Memnune Yuksel-Apak, Amy S. Paller, Karen Norton, Ahmad S. Teebi, Valerie Grum-Tokars, Gail S. Martin, George E. Davis, Marc J. Glucksman, and John A. Martignetti

967 *NIPA1* Gene Mutations Cause Autosomal Dominant Hereditary Spastic Paraplegia (SPG6)
Shirley Rainier, Jing-Hua Chai, Debra Tokarz, Robert D. Nicholls, and John K. Fink

Letters to the Editor

972 SCA8 Repeat Expansion Coexists with SCA1—Not Only with SCA6
Anna Sulek, Dorota Hoffman-Zacharska, Elzbieta Zdzienicka, and Jacek Zaremba

974 Erroneous Claims about the Impact of Mitochondrial DNA Sequence Database Errors
Agnar Helgason and Kári Stefánsson

Announcements

976 Employment Opportunities; Call for Patients; Course

Erratum

979 Genomewide Linkage Analyses of Bipolar Disorder: A New Sample of 250 Pedigrees from the National Institute of Mental Health Genetics Initiative
Dick et al. (July 2003 [73:107–114])

November 2003

i **This Month in the *Journal***
Kathryn Garber

Obituary

981 **David M. Danks, M.D., A.O. (June 4, 1931–July 8, 2003): Founder, Murdoch Childrens Research Institute**
K. H. Andy Choo

Articles

986 **Localization of a Gene for Migraine without Aura to Chromosome 4q21**
Ásgeir Björnsson, Grétar Gudmundsson, Einar Gudfinnsson, María Hrafnsdóttir, John Benedikz, Svanhildur Skúladóttir, Kristleifur Kristjánsson, Michael L. Frigge, Augustine Kong, Kári Stefánsson, and Jeffrey R. Gulcher

994 **Haplotypes in the Dystrophin DNA Segment Point to a Mosaic Origin of Modern Human Diversity**
Ewa Ziętkiewicz, Vania Yotova, Dominik Gehl, Tina Wambach, Isabel Arrieta, Mark Batzer, David E. C. Cole, Peter Hechtman, Feige Kaplan, David Modiano, Jean-Paul Moisan, Roman Michalski, and Damian Labuda

1016 **Accounting for Linkage in Family-Based Tests of Association with Missing Parental Genotypes**
Eden R. Martin, Meredyth P. Bass, Elizabeth R. Hauser, and Norman L. Kaplan

1027 **Microduplication 22q11.2, an Emerging Syndrome: Clinical, Cytogenetic, and Molecular Analysis of Thirteen Patients**
Regina E. Ensenauer, Adewale Adeyinka, Heather C. Flynn, Virginia V. Michels, Noralane M. Lindor, D. Brian Dawson, Erik C. Thorland, Cindy Pham Lorentz, Jennifer L. Goldstein, Marie T. McDonald, Wendy E. Smith, Elba Simon-Fayard, Alan A. Alexander, Anita S. Kulharya, Rhett P. Ketterling, Robin D. Clark, and Syed M. Jalal

1041 **Ordered-Subsets Linkage Analysis Detects Novel Alzheimer Disease Loci on Chromosomes 2q34 and 15q22**
William K. Scott, Elizabeth R. Hauser, Donald E. Schmechel, Kathleen A. Welsh-Bohmer, Gary W. Small, Allen D. Roses, Ann M. Saunders, John R. Gilbert, Jeffery M. Vance, Jonathan L. Haines, and Margaret A. Pericak-Vance

1052 **A Major Susceptibility Locus on Chromosome 22q12 Plays a Critical Role in the Control of Kala-Azar**
Bruno Bucheton, Laurent Abel, Sayda El-Safi, Musa M. Kheir, Sylvana Pavek, Arnaud Lemainque, and Alain J. Dessein

1061 **Molecular and Fluorescence In Situ Hybridization Characterization of the Breakpoints in 46 Large Supernumerary Marker 15 Chromosomes Reveals an Unexpected Level of Complexity**
S. E. Roberts, F. Maggouta, N. S. Thomas, P. A. Jacobs, and J. A. Crolla

1073 **Genomewide Distribution of High-Frequency, Completely Mismatching SNP Haplotype Pairs Observed To Be Common across Human Populations**
Jinghui Zhang, William L. Rowe, Andrew G. Clark, and Kenneth H. Buetow

1082 Mutations in the γ-Actin Gene (*ACTG1*) Are Associated with Dominant Progressive Deafness (DFNA20/26)
M. Zhu, T. Yang, S. Wei, A. T. DeWan, R. J. Morell, J. L. Elfenbein, R. A. Fisher, S. M. Leal, R. J. H. Smith, and K. H. Friderici

1092 Replication Inhibitors Modulate Instability of an Expanded Trinucleotide Repeat at the Myotonic Dystrophy Type 1 Disease Locus in Human Cells
Zhi Yang, Rachel Lau, Julien L. Marcadier, David Chitayat, and Christopher E. Pearson

1106 Mutations in a Gene Encoding a Novel SH3/TPR Domain Protein Cause Autosomal Recessive Charcot-Marie-Tooth Type 4C Neuropathy
Jan Senderek, Carsten Bergmann, Claudia Stendel, Jutta Kirfel, Nathalie Verpoorten, Peter De Jonghe, Vincent Timmerman, Roman Chrast, Mark H. G. Verheijen, Greg Lemke, Esra Battaloglu, Yesim Parman, Sevim Erdem, Ersin Tan, Haluk Topaloglu, Andreas Hahn, Wolfgang Müller-Felber, Nicolò Rizzuto, Gian Maria Fabrizi, Manfred Stuhrmann, Sabine Rudnik-Schöneborn, Stephan Züchner, J. Michael Schröder, Eckhard Buchheim, Volker Straub, Jörg Klepper, Kathrin Huehne, Bernd Rautenstrauss, Reinhard Büttner, Eva Nelis, and Klaus Zerres

1120 Mutations in a Novel Gene, *NHS*, Cause the Pleiotropic Effects of Nance-Horan Syndrome, Including Severe Congenital Cataract, Dental Anomalies, and Mental Retardation
Kathryn P. Burdon, James D. McKay, Michèle M. Sale, Isabelle M. Russell-Eggitt, David A. Mackey, M. Gabriela Wirth, James E. Elder, Alan Nicoll, Michael P. Clarke, Liesel M. FitzGerald, James M. Stankovich, Marie A. Shaw, Shiwani Sharma, Srecko Gajovic, Peter Gruss, Shelley Ross, Paul Thomas, Anne K. Voss, Tim Thomas, Jozef Gécz, and Jamie E. Craig

1131 *RP2* and *RPGR* Mutations and Clinical Correlations in Patients with X-Linked Retinitis Pigmentosa
Dror Sharon, Michael A. Sandberg, Vivian W. Rabe, Melissa Stillberger, Thaddeus P. Dryja, and Eliot L. Berson

1147 Maspardin Is Mutated in Mast Syndrome, a Complicated Form of Hereditary Spastic Paraplegia Associated with Dementia
Michael A. Simpson, Harold Cross, Christos Proukakis, Anna Pryde, Ruth Hershberger, Arnaud Chatonnet, Michael A. Patton, and Andrew H. Crosby

Reports

1157 Missense Mutations in *hMLH1* and *hMSH2* Are Associated with Exonic Splicing Enhancers
Ivan P. Gorlov, Olga Y. Gorlova, Marsha L. Frazier, and Christopher I. Amos

1162 A Comparison of Bayesian Methods for Haplotype Reconstruction from Population Genotype Data
Matthew Stephens and Peter Donnelly

1170 Protein-Truncating Mutations in *ASPM* Cause Variable Reduction in Brain Size
Jacquelyn Bond, Sheila Scott, Daniel J. Hampshire, Kelly Springell, Peter Corry, Marc J. Abramowicz, Ganesh H. Mochida, Raoul C. M. Hennekam, Eamonn R. Maher, Jean-Pierre Fryns, Abdulrahman Alswaid, Hussain Jafri, Yasmin Rashid, Ammar Mubaidin, Christopher A. Walsh, Emma Roberts, and C. Geoffrey Woods

1178 Origin and Diffusion of mtDNA Haplogroup X
Maere Reidla, Toomas Kivisild, Ene Metspalu, Katrin Kaldma, Kristiina Tambets, Helle-Viivi Tolk, Jüri Parik, Eva-Liis Loogväli, Miroslava Derenko, Boris Malyarchuk, Marina Bermisheva, Sergey Zhadanov, Erwan Pennarun, Marina Gubina, Maria Golubenko, Larisa Damba, Sardana Fedorova, Vladislava Gusar, Elena Grechanina, Ilia Mikerezi, Jean-Paul Moisan, André Chaventré, Elsa Khusnutdinova, Ludmila Osipova, Vadim Stepanov, Mikhail Voevoda, Alessandro Achilli, Chiara Rengo, Olga Rickards, Gian Franco De Stefano, Surinder Papiha, Lars Beckman, Branka Janicijevic, Pavao Rudan, Nicholas Anagnou, Emmanuel Michalodimitrakis, Slawomir Koziel, Esien Usanga, Tarekegn Geberhiwot, Corinna Herrnstadt, Neil Howell, Antonio Torroni, and Richard Villems

1191 Germline Inactivation of *PTEN* and Dysregulation of the Phosphoinositol-3-Kinase/Akt Pathway Cause Human Lhermitte-Duclos Disease in Adults
Xiao-Ping Zhou, Deborah J. Marsh, Carl D. Morrison, Abhik R. Chaudhury, Marius Maxwell, Guido Reifenberger, and Charis Eng

1199 eIF2B-Related Disorders: Antenatal Onset and Involvement of Multiple Organs
Marjo S. van der Knaap, Carola G. M. van Berkel, Jochen Herms, Rudy van Coster, Martina Baethmann, Sakkubai Naidu, Eugen Boltshauser, Michèl A. A. P. Willemsen, Barbara Plecko, Georg F. Hoffmann, Christopher G. Proud, Gert C. Scheper, and Jan C. Pronk

Letter to the Editor

1208 Meta-Analysis and a Large Association Study Confirm a Role for Calpain-10 Variation in Type 2 Diabetes Susceptibility
Michael N. Weedon, Peter E. H. Schwarz, Yukio Horikawa, Naoko Iwasaki, Thomas Illig, Rolf Holle, Wolfgang Rathmann, Thomas Selisko, Jan Schulze, Katherine R. Owen, Julie Evans, Laura del Bosque-Plata, Graham Hitman, Mark Walker, Jonathan C. Levy, Mike Sampson, Graeme I. Bell, Mark I. McCarthy, Andrew T. Hattersley, and Timothy M. Frayling

Book Review

1213 Sequence Analysis in a Nutshell: A Guide to Common Tools and Databases
Written by Scott Markel and Darryl León
Reviewed by Kim Worley

Announcements

1214 Employment Opportunities; Call for Patients; Course

December 2003

i Editorial Reviewers for 2003

vii This Month in the *Journal*
Kathryn Garber

Review Article

1217 Cockayne Syndrome Group B Cellular and Biochemical Functions
Cecilie Löe Licht, Tinna Stevnsner, and Vilhelm A. Bohr

Articles

1240 Capillary Malformation–Arteriovenous Malformation, a New Clinical and Genetic Disorder Caused by *RASA1* Mutations
Iiro Eerola, Laurence M. Boon, John B. Mulliken, Patricia E. Burrows, Anne Dompmartin, Shoji Watanabe, Romain Vanwijck, and Miikka Vikkula

1250 Genetic Anthropology of the Colorectal Cancer–Susceptibility Allele *APC* I1307K: Evidence of Genetic Drift within the Ashkenazim
Bethany L. Niell, Jeffrey C. Long, Gad Rennert, and Stephen B. Gruber

1261 Array-Based Comparative Genomic Hybridization for the Genomewide Detection of Submicroscopic Chromosomal Abnormalities
Lisenka E. L. M. Vissers, Bert B. A. de Vries, Kazutoyo Osoegawa, Irene M. Janssen, Ton Feuth, Chik On Choy, Huub Straatman, Walter van der Vliet, Erik H. L. P. G. Huys, Anke van Rijk, Dominique Smeets, Conny M. A. van Ravenswaaij-Arts, Nine V. Knoers, Ineke van der Burgt, Pieter J. de Jong, Han G. Brunner, Ad Geurts van Kessel, Eric F. P. M. Schoenmakers, and Joris A. Veltman

1271 Predisposition Locus for Major Depression at Chromosome 12q22-12q23.2
Victor Abkevich, Nicola J. Camp, Charles H. Hensel, Chris D. Neff, Deanna L. Russell, Dana C. Hughes, Agnes M. Plenk, Michael R. Lowry, R. Lynn Richards, Catherine Carter, Georges C. Frech, Steven Stone, Kerry Rowe, Chi Ai Chau, Kathleen Cortado, Angelene Hunt, Karanina Luce, Gayanne O'Neil, Jeff Poarch, Jennifer Potter, Gregg H. Poulsen, Heidi Saxton, Michelle Bernat-Sestak, Victor Thompson, Alexander Gutin, Mark H. Skolnick, Donna Shattuck, and Lisa Cannon-Albright

1282 *MDR1* Ala893 Polymorphism Is Associated with Inflammatory Bowel Disease
Steven R. Brant, Carolien I. M. Panhuysen, Dan Nicolae, Deepthi M. Reddy, Denise K. Bonen, Reda Karaliukas, Leilei Zhang, Eric Swanson, Lisa W. Datta, Thomas Moran, Geoffrey Ravenhill, Richard H. Duerr, Jean-Paul Achkar, Amir S. Karban, and Judy H. Cho

1293 A Novel Claudin 16 Mutation Associated with Childhood Hypercalciuria Abolishes Binding to ZO-1 and Results in Lysosomal Mistargeting
Dominik Müller, P. Jaya Kausalya, Felix Claverie-Martin, Iwan C. Meij, Paul Eggert, Victor Garcia-Nieto, and Walter Hunziker

1302 Reciprocal Crossovers and a Positional Preference for Strand Exchange in Recombination Events Resulting in Deletion or Duplication of Chromosome 17p11.2
Weimin Bi, Sung-Sup Park, Christine J. Shaw, Marjorie A. Withers, Pragna I. Patel, and James R. Lupski

1316 Inference on Haplotype Effects in Case-Control Studies Using Unphased Genotype Data
Michael P. Epstein and Glen A. Satten

1330 Comparative Linkage-Disequilibrium Analysis of the β-Globin Hotspot in Primates
Jeffrey D. Wall, Linda A. Frisse, Richard R. Hudson, and Anna Di Rienzo

1341 Mutations in the *ZNF41* Gene Are Associated with Cognitive Deficits: Identification of a New Candidate for X-Linked Mental Retardation
Sarah A. Shoichet, Kirsten Hoffmann, Corinna Menzel, Udo Trautmann, Bettina Moser, Maria Hoeltzenbein, Bernard Echenne, Michael Partington, Hans van Bokhoven, Claude Moraine, Jean-Pierre Fryns, Jamel Chelly, Hans-Dieter Rott, Hans-Hilger Ropers, and Vera M. Kalscheuer

1355 A Systematic Genomewide Linkage Study in 353 Sib Pairs with Schizophrenia
N. M. Williams, N. Norton, H. Williams, B. Ekholm, M. L. Hamshere, Y. Lindblom, K. V. Chowdari, A. G. Cardno, S. Zammit, L. A. Jones, K. C. Murphy, R. D. Sanders, G. McCarthy, M. Y. Gray, G. Jones, P. Holmans, V. Nimgaonkar, R. Adolfson, U. Ösby, L. Terenius, G. Sedvall, M. C. O'Donovan, and M. J. Owen

1368 Fine-Scale Mapping of Disease Genes with Multiple Mutations via Spatial Clustering Techniques
John Molitor, Paul Marjoram, and Duncan Thomas

1385 Search for Haplotype Interactions That Influence Susceptibility to Type 1 Diabetes, through Use of Unphased Genotype Data
Jian Zhang, Faming Liang, Willem R. M. Dassen, Pieter A. Doevendans, and Mathisca de Gunst

1402 Informativeness of Genetic Markers for Inference of Ancestry
Noah A. Rosenberg, Lei M. Li, Ryk Ward, and Jonathan K. Pritchard

Reports

1423 Dominant Intermediate Charcot-Marie-Tooth Type C Maps to Chromosome 1p34-p35
Albena Jordanova, Florian P. Thomas, Velina Guergueltcheva, Ivailo Tournev, Francisco A. A. Gondim, Borjana Ishpekova, Els De Vriendt, An Jacobs, Ivan Litvinenko, Neviana Ivanova, Borjan Buzhov, Peter De Jonghe, Ivo Kremensky, and Vincent Timmerman

1431 Allelic Heterogeneity in LINE-1 Retrotransposition Activity
Sheila M. Lutz, Bethaney J. Vincent, Haig H. Kazazian Jr., Mark A. Batzer, and John V. Moran

1438 The *DTNBP1* (Dysbindin) Gene Contributes to Schizophrenia, Depending on Family History of the Disease
Ann Van Den Bogaert, Johannes Schumacher, Thomas G. Schulze, Andreas C. Otte, Stephanie Ohlraun, Svetlana Kovalenko, Tim Becker, Jan Freudenberg, Erik G. Jönsson, Marja Mattila-Evenden, Göran C. Sedvall, Piotr M. Czerski, Pawel Kapelski, Joanna Hauser, Wolfgang Maier, Marcella Rietschel, Peter Propping, Markus M. Nöthen, and Sven Cichon

1444 SVA Elements Are Nonautonomous Retrotransposons that Cause Disease in Humans
Eric M. Ostertag, John L. Goodier, Yue Zhang, and Haig H. Kazazian Jr.

1452 Prevalence and Evolutionary Origins of the del(*GJB6*-D13S1830) Mutation in the *DFNB1* Locus in Hearing-Impaired Subjects: a Multicenter Study
Ignacio del Castillo, Miguel A. Moreno-Pelayo, Francisco J. del Castillo, Zippora Brownstein, Sandrine Marlin, Quint Adina, David J. Cockburn, Arti Pandya, Kirby R. Siemering, G. Parker Chamberlin, Ester Ballana, Wim Wuyts, Andréa Trevas Maciel-Guerra, Araceli Álvarez, Manuela Villamar, Mordechai Shohat, Dvorah Abeliovich, Hans-Henrik M. Dahl, Xavier Estivill, Paolo Gasparini, Tim Hutchin, Walter E. Nance, Edi L. Sartorato, Richard J. H. Smith, Guy Van Camp, Karen B. Avraham, Christine Petit, and Felipe Moreno

1459 Mutations in a Gene Encoding a Novel Protein Containing a Phosphotyrosine-Binding Domain Cause Type 2 Cerebral Cavernous Malformations
Christina L. Liquori, Michel J. Berg, Adrian M. Siegel, Elizabeth Huang, Jon S. Zawistowski, T'Prien Stoffer, Dominique Verlaan, Fiyinfolu Balogun, Lori Hughes, Tracey P. Leedom, Nicholas W. Plummer, Milena Cannella, Vittorio Maglione, Ferdinando Squitieri, Eric W. Johnson, Guy A. Rouleau, Louis Ptacek, and Douglas A. Marchuk

Letters to the Editor

1465 Further Evidence of *IBD5/CARD15 (NOD2)* Epistasis in the Susceptibility to Ulcerative Colitis
Dermot P. B. McGovern, David A. van Heel, Kenichi Negoro, Tariq Ahmad, and Derek P. Jewell

1467 Reports of the Death of the Epistasis Model Are Greatly Exaggerated
Martin Farrall

1468 Affected-Sib-Pair Data Can Be Used to Distinguish Two-Locus Heterogeneity from Two-Locus Epistasis
Heather J. Cordell

1471 Reply to Cordell and Farrall
Veronica J. Vieland and Jian Huang

Announcements

1474 Employment Opportunities; Call for Abstracts; Conference

Errata

1477 *BRCA2* T2722R Is a Deleterious Allele That Causes Exon Skipping
Fackenthal et al. (September 2002 [71:625–631])

1477 Effects of Electron-Beam Irradiation on Buccal-Cell DNA
Castle et al. (September 2003 [73:646–651])

1480 Contents of Volume 73

Information for Contributors